Our Dermatology Online

Brief Report

Dermatological complications associated with beauty salon practices: A cross-sectional survey of 230 clients and public awareness of risks

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ABSTRACT

Background: Non-medical beauty salon procedures are widespread but may lead to dermatological complications. **Objective:** The objective was to assess the prevalence, type, and risk factors of salon-related skin complications and to evaluate public awareness of infection risks. **Methods:** A cross-sectional online survey of 230 clients aged 15–45 years in Morocco collected sociodemographic data, procedure frequency, dermatological complications, management, and awareness. **Results:** A total of 59% reported at least one complication. The most frequent were folliculitis (27%), allergic dermatitis (16%), fungal infections (21%), and scalp irritation (18%). Only 29% sought dermatological advice, while 41% repeated the same procedure. Younger clients (15–25 years) had more allergic/irritant complications ($p < 0.01$), whereas older clients (36–45 years) reported more fungal infections ($p < 0.05$). Awareness of infection transmission was poor, with 63% unaware of risks from improperly sterilized instruments. **Conclusion:** Salon-related procedures pose a significant cutaneous risk, compounded by low awareness and underutilization of dermatological care. Targeted education, improved hygiene standards, and clinical vigilance are essential to mitigate preventable morbidity.

Key words: Beauty salons, Dermatological complications, Folliculitis, Onychomycosis, Public awareness

INTRODUCTION

Beauty salons have become increasingly popular settings for cosmetic procedures such as waxing, hair dyeing, straightening, manicures, pedicures, and eyelash extensions, particularly among women and young adults [1,2]. While generally considered routine, these practices are not without risks. A wide spectrum of dermatological complications, including folliculitis, allergic contact dermatitis, fungal infections, and pigmentary changes, have been linked to salon-based procedures, especially when hygiene and technique are inadequate [3,4].

Although these services are widespread in Morocco, epidemiological data on their dermatological impact remain limited. Existing reports from different regions have highlighted infectious, allergic, and chemical-related dermatoses among salon clients and workers [5-7]. Moreover, cases of viral transmission through waxing [8], ocular disorders associated with eyelash extensions [9], and the role of beauty salons as potential reservoirs for disease spread [2,6] underscore the public health significance of this issue.

This study, therefore, aimed to evaluate the frequency and nature of salon-related complications, analyze demographic and behavioral correlates, and assess the clients' perception of hygiene and awareness of transmission risks.

Objectives

The objectives of this study were to:

1. Assess the frequency and distribution of cosmetic procedures performed in beauty salons among clients.

How to cite this article: El Bakkali M, Gallouj S, Bennani K, El Jouari O. Dermatological complications associated with beauty salon practices: A cross-sectional survey of 230 clients and public awareness of risks. Our Dermatol Online. 2026;17(3):348-352.

Submission: 07.09.2025; **Acceptance:** 14.11.2025

DOI: 10.7241/ourd.20263.10

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2. Identify the dermatological complications most frequently associated with these procedures.
3. Analyze correlations between demographic variables (age, sex, education) and reported complications.
4. Evaluate the level of awareness of the participants regarding hygiene practices and risks of infection transmission.

MATERIALS AND METHODS

This was a cross-sectional, survey-based study conducted between March and July in Morocco.

Study Population

Clients attending beauty salons were invited to participate. The inclusion criteria were an age between 15 and 45 years, a history of at least one salon-based cosmetic procedure in the past twelve months, and informed consent.

Data Collection

A structured bilingual (Arabic/French) questionnaire was administered. It collected data on sociodemographic characteristics (age, sex, education level), type and frequency of salon procedures (e.g., waxing, hair dyeing, nail extensions, eyelash extensions, facials), occurrence of dermatological complications, management of adverse effects, and perception of hygiene standards.

Sample Size

A total of 230 participants completed the questionnaire.

Statistical Analysis

Data was entered into Microsoft Excel and analyzed with SPSS v.25. Descriptive statistics (frequency, percentage) were used to summarize demographic variables, procedures, and complications. Chi-squared and Fisher's exact tests were performed to assess correlations between categorical variables (age group, education level, frequency of salon visits) and the occurrence of complications. A p-value < 0.05 was considered statistically significant.

Ethics Statement

Participation was voluntary and anonymous. The study adhered to the principles of the Declaration of Helsinki, with informed consent obtained from all participants.

RESULTS

A total of 230 participants completed the survey. The majority were women (200; 87%), with only 30 men (13%). The predominant age group was 15–25 years (110; 48%), followed by 26–35 years (85; 37%), and 36–45 years (35; 15%). Most participants had a university-level education (154; 67%), while 24% had secondary and 9% primary education.

Regarding the frequency of beauty salon attendance, 62 respondents (27%) reported weekly visits, 99 (43%) monthly, 49 (21%) every 2–3 months, and only 20 (9%) rarely.

The most frequently performed procedures were hair removal (170; 74%), manicure/pedicure (136; 59%), and hair coloring or straightening (126; 55%). Less common procedures included artificial nails (74; 32%), eyelash extensions (48; 21%), professional makeup (44; 19%), facial treatments (37; 16%), and semi-permanent makeup (14; 6%) (Table 1).

Overall, 136 participants (59%) reported at least one dermatological complication after beauty procedures. The most frequent were folliculitis/ingrown hairs after hair removal (62; 27%), scalp irritation or hair loss after coloring/straightening (42; 18%), allergic contact dermatitis related to adhesives used for nails or eyelash extensions (37; 16%), onychomycosis (30; 13%), and paronychia (18; 8%). Other reported conditions included acne flares or herpes reactivation after professional makeup (25; 11%), adverse reactions to facial peeling (14; 6%), and post-inflammatory hyperpigmentation or scarring (7; 3%) (Table 2).

Table 1: Frequency of salon attendance and types of procedures performed.

Variable	n (%)
Frequency of salon attendance	
Weekly	62 (27%)
Monthly	99 (43%)
Every 2–3 months	49 (21%)
Rarely	20 (9%)
Type of procedure performed	
Hair removal (waxing, threading, laser)	170 (74%)
Manicure/pedicure	136 (59%)
Hair coloring/straightening	126 (55%)
Artificial nails	74 (32%)
Eyelash extensions	48 (21%)
Professional makeup	44 (19%)
Facial treatments/peels	37 (16%)
Semi-permanent makeup (microblading)	14 (6%)

Table 2: Reported dermatological complications and their management.

Complication	n (%)
Folliculitis/ingrown hairs (post-hair removal)	62 (27%)
Scalp irritation/hair loss (coloring/straightening)	42 (18%)
Allergic contact dermatitis (adhesives for nails/eyelashes)	37 (16%)
Onychomycosis	30 (13%)
Paronychia	18 (8%)
Acne flare/herpes reactivation (makeup)	25 (11%)
Adverse reaction to facial peeling	14 (6%)
Post-inflammatory hyperpigmentation/scarring	7 (3%)
At least one complication reported	136 (59%)

With respect to the management of complications, only 67 participants (29%) sought medical advice from a dermatologist. The remainder either self-medicated (81; 35%), took no action (35; 15%), or reported persistence or worsening of the lesions (22; 10%).

Notably, 95 respondents (41%) repeated the same procedure despite experiencing adverse effects, including 55 (24%) who returned to the same salon.

The perception of hygiene in salons was generally poor: 124 respondents (54%) rated hygiene as average, 46 (20%) as poor, and only 60 (26%) as very good (defined as rigorous disinfection and single-use materials).

Knowledge of infection transmission risks was limited. A total of 145 participants (63%) did not know that inadequately sterilized instruments could transmit infections such as hepatitis or bacterial diseases, and 161 (70%) were unaware that reused wax could potentially transmit HPV.

Correlation analysis highlighted age- and behavior-dependent patterns. Younger participants (15–25 years) were significantly more likely to report folliculitis and allergic reactions to adhesives ($p < 0.01$), while older participants (36–45 years) more frequently reported fungal infections such as onychomycosis ($p < 0.05$). Frequent salon attendance (weekly) was associated with a higher risk of dermatological complications compared to occasional visitors ($p < 0.05$). Additionally, lower education levels were significantly associated with reduced awareness of infection transmission and hygiene risks ($p < 0.01$). No significant association was found between sex and the type of complication, although women were more frequently exposed due to more frequent use of salon services (Table 3).

Table 3: Correlations between demographic/behavioral factors and dermatological complications.

Variable	Associated outcome	Statistical significance
Age group		
15–25 years	Higher prevalence of folliculitis and allergic reactions to adhesives (eyelashes/nails)	$p < 0.01$
26–35 years	Mixed profile, no dominant association	NS
36–45 years	More frequent fungal infections (onychomycosis, paronychia)	$p < 0.05$
Frequency of salon attendance		
Weekly visits	Increased risk of bacterial and fungal complications	$p < 0.05$
Monthly or less	Lower complication rates	
Education level		
Primary/ secondary	Lower awareness of infection risks and hygiene standards	$p < 0.01$
University	Better awareness, but still significant rates of complications	NS
Sex		
Female	Higher exposure to hair removal, nail, and eyelash procedures; increased complications overall	$p < 0.05$
Male	Predominantly hair-related complications (scalp irritation, folliculitis)	NS

DISCUSSION

Our survey reveals that beauty salon procedures carry a substantial risk of dermatological complications, with over half of the participants reporting at least one adverse event. This prevalence aligns with observational studies reporting a broad spectrum of salon-related dermatoses, such as folliculitis, contact dermatitis, fungal and bacterial infections, and thermal or chemical injuries after cosmetic interventions [1,3].

Mechanical trauma (e.g., epilation, aggressive manicuring), chemical exposure (e.g., hair dyes, straightening agents, peel solutions), and microbial contamination (e.g., improperly disinfected instruments, recycled wax) represent the primary pathophysiological pathways leading to the observed complications. Folliculitis and ingrown hairs often follow hair removal due to follicular obstruction and secondary bacterial infection. Allergic contact dermatitis is frequently linked to acrylate or cyanoacrylate adhesives used for false nails and eyelash extensions, while onychomycosis may follow repeated microtrauma and humid occlusion [4].

A key and concerning finding is the low rate of medical consultation: only 29% of the affected participants sought dermatological advice despite the high complication rate. A large proportion opted for self-

medication or no action. This under-reporting mirrors previous studies and reflects a public health gap in awareness and dermatological care-seeking [3,5].

The age-stratified analysis provides further nuance: younger clients were more often affected by allergic or irritant reactions related to eyelash extensions, artificial nails, and frequent epilation, while older clients more frequently presented with fungal infections such as onychomycosis and paronychia. [5,7]. These patterns likely reflect both exposure differences and cumulative host factors, suggesting that preventive strategies should be targeted according to procedure type and age.

Hygiene practices and infection control remain modifiable determinants. Our data, consistent with prior reports, show that many clients perceive salon hygiene as average or poor, and awareness of specific risks (e.g., viral transmission via reused wax) is strikingly low [2,8].

Importantly, eyelash extensions merit particular attention. They pose a triple risk: strong allergenicity (formaldehyde-releasing resins, cyanoacrylates), mechanical stress on hair follicles, and proximity to the ocular surface. Documented complications include keratoconjunctivitis and allergic blepharitis [9]. Our finding of adhesive-related dermatitis and lash loss reflects this risk, underscoring the need for dermatologists and ophthalmologists to inquire about cosmetic exposures when assessing periocular complaints.

From a public health standpoint, these results suggest several actionable interventions:

1. Education campaigns for clients and salon personnel on hygiene practices, early symptom recognition, and seeking dermatological care.
2. Training and certification programs for salon workers focusing on aseptic technique, instrument sterilization, and safe chemical handling.
3. Regulatory measures mandating basic infection-control protocols and transparency in adhesive and chemical product ingredients.
4. Inclusion of cosmetic exposure history in routine dermatology consultations, enhancing diagnostic accuracy for salon-related conditions [6].

Strengths and Limitations

The strengths of this study include a bilingual, context-adapted questionnaire, a robust sample size (n = 230), and inclusion of exposure and behavioral variables allowing for correlation analysis. The limitations include reliance on self-reported outcomes without clinical verification, potential sampling bias inherent to online recruitment, and a lack of microbiological confirmation for infectious conditions. Future research should incorporate clinical examination, laboratory confirmation, and prospective surveillance to better define incidence and causality [3].

Our findings reinforce the growing recognition that beauty salon procedures carry a meaningful risk of dermatological complications. These are often under-recognized and inadequately managed.

CONCLUSION

This cross-sectional survey highlights that beauty salon practices, although widely used for aesthetic purposes, are associated with a significant risk of dermatological complications, particularly folliculitis, fungal infections, and allergic reactions. Alarmingly, most affected clients do not seek medical care and frequently repeat the same procedures, reflecting a gap in awareness and risk perception. Our findings underscore the urgent need for public education, salon staff training, and regulatory oversight to improve hygiene and safety standards. For dermatologists, incorporating questions about cosmetic exposures into routine consultations may facilitate early recognition and appropriate management of salon-related dermatoses.

Statement of Human and Animal Rights

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the 2008 revision of the Declaration of Helsinki of 1975.

Statement of Informed Consent

Informed consent for participation in this study was obtained from all patients.

REFERENCES

1. Al Faker I, Marraha F, Gourinda A, Bousgheiri F, Chahoub H, Rahmani N, et al. Body hair removal: A cross-sectional survey among women in the north of Morocco. Our Dermatol Online. 2024;15:20-5.
2. Alharbi N, Alhashim H. Beauty salons are key potential sources of disease spread: Review. Infect Drug Resist. 2021;14:1247-53.
3. Kolalapudi SA, Mahesh AR, Arumilli PC, Kotha S, Krishna Snigdha AG, Saka S, et al. Dermatoses occurring after

parlor procedures: An observational study. J Cutan Aesthet Surg. 2020;13:357-60.
4. Hoorens I, Ongenae K. Nail salon-related dermatoses: An underestimated problem. Contact Dermatitis. 2013;68:324-31.
5. Hassan I, Shah FY, Saqib N, Bhat MA, Shah AA, Bashir Y, et al. Prevalence of dermatoses among hairdressers and beauticians in Srinagar, the capital city of Kashmir, India. Our Dermatol Online. 2021;12:367-73.
6. Zare A, Janghorban R. Awareness and practice of female beauty salon staff about human papilloma virus and its transmission in pubic hair removal using wax in Shiraz, southwest of Iran. Adv Biomed Res. 2020;9:24.
7. Shanshal M. Dermatologic Emergencies CME Part II: Infections and infection-related complications. Our Dermatol Online. 2022;13:483-94.
8. Broekaert SM, Deschamps B, Theate I. Brazilian waxing and human papillomavirus: A case report. J Dermatol. 2014;41:444-5.
9. Amano Y, Sugimoto Y, Sugita M. Ocular disorders due to eyelash extensions. Cornea. 2012;31:121-5.

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Source of Support: This article has no funding source.

Conflict of Interest: The authors have no conflict of interest to declare.